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A NEW SPECIES OF *SALSOLA* WITH NOTES
ON ITS AFFINITIES*

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Salsola henriciae Verdoorn, sp. nov.: in speciebus bracteis oppositis, bracteis strigosis, plantis humilibus radicanibus, arena obtectis, 2—15 cm. altis distinguitur.

Suffrutex humilis, arenicola; rami divaricati, arena obtecti, saepe stoloniferi, ramulis erectis, 2—15 cm. altis. *Folia* squamiformia, carnosa, opposita, ovata, dorso rotundato-carinata, strigosa, nonnunquam deinde glabrescentia, c. 2 mm. longa, 1.75 mm. lata, apice obtusa, basi hyalino-auriculata, marginibus hyalinis minute ciliatis. *Bracteolae* 2, foliis similes sed usque ad 3 mm. longae, dorso valde carinatae. *Flores* solitarii axillares, apicibus ramulorum pseudostrobilati. *Sepala* 5, ovato-oblonga, circa 3 mm. longa, membranacea, medio leviter incrassata, dorso strigosa. *Stamina* 5. *Ovarium* ovoideum, in stylum longum bifidum productum. *Fructus* utriculus. *Semen* orbiculare; embryo sub-cochleato spirali.

ORANGE FREE STATE. Fauresmith: farm Rosemarie near Luckhoff, *Henrici* 3187; 3188; 3892; 3897 (PRE, holotype); 3897a; 4532; 4533; 4543; 4544; 4588; 4589; 4592; 4593; 4597; 5224; 5225; 5231; 5231a; *Verdoorn* 1629; 2147; *Brueckner* 690; 11 miles north-west of Luckhoff; *Acocks* 13508; 12 miles west of Luckhoff; *Sidey* 533; Panfontein, near Koffiefontein; *Henrici* 4506; 4509; 4478; 4477; Poortjiesdam, *Henrici* 4500; 4505.

*Presented at the Bloemfontein Congress of the South African Association for the Advancement of Science (1954).

A low suffrutex with woody branches spreading and rooting under the sand, the ultimate branchlets erect, 2—15 cm. long above ground. *Leaves* opposite, bract-like, fleshy, ovate, about 1.5—3 mm. long and 1.75 mm. broad, concave, dorsally rounded and somewhat carinate, strigose with appressed, translucent, acute hairs, glabrescent, apex subacute, base spurred, with a tuft of hairs below, margins hyaline, minutely ciliate. *Bracteoles* 2, similar to the bracteate leaves, but somewhat longer, 3—4 mm. long, more distinctly carinate and sooner glabrescent. *Flowers* solitary, sessile, axillary, forming pseudo-strobiles at the apices of branchlets. *Sepals* 5, ovate-oblong to lanceolate-oblong, the outer the largest, 3.5 mm. long, 1.75 mm. broad, the innermost about 1.25 mm. broad, strigose dorsally, all membranous, but at least the outer developing a thickened green triangular area at the middle or in the upper half; the triangle faintly reticulate and in fruit producing small tubercles at the base (not the usual membranous wing). *Stamens* 5, inserted in the membranous annular disc, filaments linear membranous, up to 3 mm. long, anthers dorsifixed, about 1 mm. long. *Ovary* subglobose, about 1.5 mm. long and 1.25 mm. broad, produced into a 2-fid style, about 1.5 mm. long. *Fruit* a utricle. *Seeds* orbicular, embryo obvious through the transparent walls, subcochleate.

The new species occurs quite frequently in the south-western corner of the Orange Free State and has been collected at intervals in this area during the last 19 years. Dr. Henrici has sent in many specimens collected on different parts of Mrs. Mudd's farm, Rosemarie, near Luckhoff in the Fauresmith district. She has also collected it at Poortjiesdam and Panfontein which lie to the north of Luckhoff and nearer Koffiefontein. Other collectors have sent it in from 12 miles west and 11 miles north-west of Luckhoff. In all these years, it has not been found outside this rather circumscribed area except for a somewhat doubtful specimen collected at Potfontein in the Philipstown district, that is just across the border of Fauresmith district in the Cape Province. This specimen is slightly different from the 30 odd other specimens and until that locality can be visited again or specimens be sent in from there, it must remain doubtful. It is possible that it might be a hybrid with *Salsola rabieana* which, at Rosemarie, grows on the limestone ridges near the pan on whose fringes the new species grows. (It has not yet been established whether or not *Salsolas* hybridize in the wild state but it seems very probable that they do.)

In the new species the feature which is striking, at least in the Herbarium, is that the bract-like leaves are distinctly opposite. This feature is shared with at least two other described South African species, *S. humifusa* Brueckner and *S. geminiflora* C. H. Wr. Another characteristic common to these three species is the absence of the dorsal wing on the mature perianth. In place of it some tubercles, or a thick spur, may develop, but to date no specimen has been found

with the horizontal wing which develops on the fruiting perianth of the species which have alternate bracts. This, however, is not very useful as a diagnostic character because the wings develop only on the mature perianth and at some stages it cannot be determined whether a specimen will have wings or not.

The distinguishing features of the new species and its allies with opposite bracts are shortly described below.

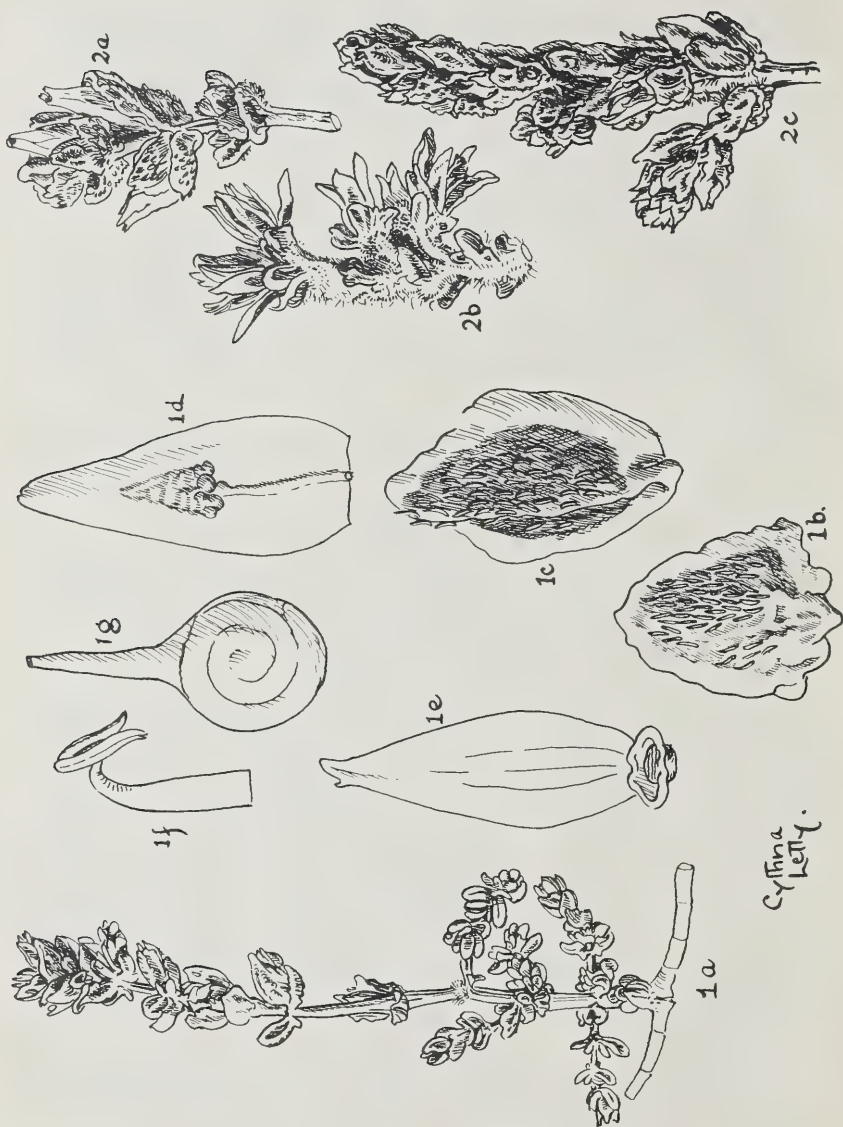
Salsola humifusa Brueckner is characterised by the procumbent habit, the long rather slender runners creeping on top of and close to the ground, forming mat-like growths, and the runners sending out roots at intervals. The rather thick, ovate bracts are very small, about 1·5 mm. long, practically glabrous or with a sparse loose pubescence which is mostly at the base of the bract and on the twigs. This species has been collected in the Philipstown and Kimberley districts in the Cape and the Fauresmith and Hoopstad districts in the O.F.S. One collector of this species notes that it grows on the fringes of purely saline pans.

Salsola henriciae, the new species, is a dwarf plant but usually does not grow as flat as *S. humifusa*. Usually the plants are half buried by sand and so form mounds, the ramifications under the surface are quite thick and divaricate and root at the joints. The ultimate erect branches are 2—15 cm. high above ground. The bracts are slightly larger than in the preceding but of the same ovate shape and hardness and they are usually strigose with appressed, translucent, pointed hairs. It occurs in the south-western corner of the Fauresmith district near Luckhoff and Koffiefontein where it has been found on and near pans with deposits of carbonates and sulphates.

S. geminiflora C. H. Wr. is usually taller (about 30—45 cm.) than either of the previous two species, more or less erect in habit with some branches occasionally decumbent and rooting where they touch the ground. The bracts on the lateral twigs are often so dense that when flowering they form strobile-like inflorescences. When these are numerous the plants become top-heavy and that causes the branches to fall over on to the ground and root as described above.

In comparison with the two previous species the bracts are more succulent and almost subglobose with loose spreading pubescence at the base. According to present records, this species is much more widely spread and is not so specialized in its requirements as the other two. It has been collected in the Van Rhynsdorp, Calvinia, Williston, Carnarvon, Philipstown, Kenhardt, Gordonia, Herbert and Kimberley districts of the Cape Province and the Fauresmith district of the Orange Free State. This range brings it to the vicinity of both the other species.

In South Africa, *S. geminiflora* provides the link between the species with opposite bracts and the more numerous species with alternate bracts, for all the bracts are not opposite.



Among the group with alternate bracts it is allied to *S. aphylla* which has similar succulent bracts, salty to the taste when fresh, but the plants grow up to 2 m. tall. In *S. aphylla* the fruiting perianth is very conspicuously winged while no wings have been found on any of the numerous specimens of *S. geminiflora* examined to date.

KEY TO SPECIES WITH OPPOSITE BRACTS.

Procumbent, flat-growing plants; bracts glabrous or with loose pubescence at the base, about 1.5 mm. long		<i>S. humifusa</i>
Plants not flat-growing; bracts over 1.5 mm. long:		
Plants 2—15 cm. tall; bracts strigose dorsally		<i>S. henriciae</i>
Plants up to 45 cm. tall; bracts glabrous or loosely pubescent at the base		<i>S. geminiflora</i>

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1. *Salsola henriciae* Verdoorn sp. nov. 1a, branchlet showing opposite bracteal-leaves, the upper with flowers in the axils; 1b, bracteal leaf, $\times 14$; 1c, bracteole, $\times 14$; 1d, one of the outer sepals, dorsal view, dark triangular area above the middle with a few tubercles at the base, $\times 14$; 1e, one of the inner sepals, ventral view, $\times 14$; 1f, stamen, $\times 14$; 1g, utricle, pericarp becoming transparent and showing the spiral embryo within, $\times 14$.
- 2a, *S. henriciae* Verdoorn, top of flowering twig; 2b, *S. humifusa* Brueckner, ditto; 2c, *S. geminiflora* C. H. Wr. ditto.